

Assessment Map 2020-21 CS



Department: CS

EPS	Year 7	Year 8	Year 9	Year 10	Year 11
2	<p>Focus: Digital literacy & E-safety</p> <p>Structure: Short answer questions and extended response</p> <p>Knowledge and skills assessed:</p> <p>File management Email Online dangers How to stay safe online How to avoid being a victim of fraud and theft Online. The principles of good passwords</p>	<p>Focus: Using spreadsheets Data representation</p> <p>Structure: Computer based test - completion of spreadsheet skills. Short answer questions and extended response</p> <p>Knowledge and skills assessed:</p> <p>Setting up and using a spreadsheet for a specific purpose. Basic formulas/functions Advanced formulas Creating graphs Using formatting appropriately.</p> <p>Know how data needs to be converted into a binary format to be processed by a computer. Know how to convert positive denary whole numbers (0-255) into 8 bit binary numbers and vice versa. Explain the use of binary codes to represent characters Explain the term character set & ASCII. Digital Image representation-pixels.</p>	<p>Focus: Computer Systems Memory Storage</p> <p>Structure: Short answer questions and extended response</p> <p>Knowledge and skills assessed:</p> <p>Definition of a computer system and the 4 main elements Definition & examples of embedded system What is the CPU What is the purpose of the CPU Components of the CPU What is the Von Neumann architecture and registers The main factors which affect the performance of a CPU The Fetch – Execute cycle.</p> <p>Understand the term 'memory' Be able to explain the purpose of RAM Be able to explain the purpose of ROM</p> <p>Understand the need for virtual memory The purpose of secondary storage</p> <p>Identify common types of storage Match storage devices to their type of storage</p>	<p>Focus: Computational thinking Algorithms Data representation</p> <p>Structure: Exam style questions short answer and extended response</p> <p>Knowledge and skills assessed: Understand the term and processes in computational thinking. Be able to use the skills of abstraction, decomposition and algorithmic thinking. Be able to use a linear search to find data. Be able to use a binary search to find data. Understand the differences between a linear and a binary search. Understand the principles of a bubble sort. Be able to perform a bubble sort on a set of data. Understand how the number of comparisons increases in a bubble sort. Understand the principles of a merge sort. Be able to perform a merge sort on a set of data. Understand the principles of an insertion sort. Be able to perform an insertion sort on a set of data.</p>	<p>Focus: Computational thinking Algorithms Programming All topics in mock paper</p> <p>Structure: Exam style questions short answer and extended response</p> <p>Knowledge and skills assessed:</p> <p>Understand the term and processes in computational thinking Be able to use the skills of abstraction, decomposition and algorithmic thinking. Understand the differences between selection, iteration and sequence. Be able to produce an algorithm using a flowchart. Be able to produce an algorithm using pseudocode. Be able to find and correct errors in algorithms.</p>

			<p>Explain the characteristics of common types of storage Be able to recommend a storage device for a situation</p> <p>How do we calculate storage requirements.</p>	<p>Be able to produce an algorithm using a flowchart. Be able to produce an algorithm using pseudocode. Be able to find and correct errors in algorithms.</p> <p>Identify common types of storage Match storage devices to their type of storage Explain the characteristics of common types of storage Be able to recommend a storage device for a situation</p> <p>How do we calculate storage requirements.</p> <p>Know how data needs to be converted into a binary format to be processed by a computer. Know how to convert positive denary whole numbers (0-255) into 8 bit binary numbers and vice versa. Explain the use of binary codes to represent characters Explain the term character set Describe with examples (for example ASCII and Unicode) the relationship between the number of bits per character in a character set and the number of characters which can be represented. Understand how a digital image and sound is made up</p>	
4	<p>Focus: Algorithms & Programming How Computers work</p> <p>Structure: Short answer questions and extended response</p>	<p>Focus: Networks Using Media</p> <p>Structure: Short answer questions and extended response</p>	<p>Focus: Cyber Security & Networks</p> <p>Structure: Short and extended answer questions</p> <p>Knowledge and skills assessed:</p>	<p>Focus: Computer Logic Programming</p> <p>Structure: Practical test testing the skills developed in Python</p> <p>Knowledge and skills assessed:</p>	<p>Focus: Revision</p> <p>Structure:</p> <p>Knowledge and skills assessed:</p> <p>All topic areas</p>

	<p><u>Knowledge and skills assessed:</u></p> <p>Understand the term and processes in computational thinking. Be able to define abstraction, decomposition and algorithmic thinking. Creating algorithms using flowcharts.</p> <p>Definition of a computer system and the 4 main elements Hardware V Software What is the CPU What is Binary</p>	<p><u>Knowledge and skills assessed:</u></p> <p>Understand why we network computers together Understand what is meant by a LAN Understand what is meant by a WAN Understand the hardware needed to create a network Students will be able to identify a Star and Mesh Topology</p> <p>Skills Creating an appropriate digital artefact for a given audience. Sources of information and how to check the reliability of those sources. Licencing images/facts Formatting skills</p>	<p>Understand why we network computers together Understand what is meant by a LAN Understand what is meant by a WAN Understand what is meant by a client-server network Understand what is meant by a peer-to-peer network Understand the hardware needed to create a network Students will be able to identify a Star and Mesh Topology Students will be able to compare Advantages and Disadvantages of Wi-Fi and Ethernet Explain what encryption is Know what layers are and their role</p> <p>Explain the different types of malware Understand how phishing operates Discuss how data can be intercepted Understand the meaning of DDOS and brute force attacks Explain the effects of a DDOS attack Explain how to be protected against DDOS attacks Understand the concept of SQL injection Explain how a vulnerability can be exploited. Explain what is meant by 'network forensics' Understand the concept of penetration testing To understand the effects of user access levels on a system To understand how and why passwords must be kept secure and the levels of complexity</p>	<p>The use of variables, constants, operators, inputs, outputs and assignments The use of the three basic programming constructs used to control the flow of a program: Sequence, selection, iteration (count and condition controlled loops) The use of basic string manipulation The use of basic file handling operations: open, read, write, close The use of arrays (or equivalent) when solving problems, including both one and two dimensional arrays The use of data types: Integer, real, Boolean, character and string, casting The common arithmetic operators The common Boolean operators.</p> <p>Explain why data needs to be in binary form Draw diagrams for the AND, OR and NOT gates Create a Truth Table for AND, OR and NOT gates Draw Logic Circuits and Truth Tables for 2nd Level Logic Circuits</p>	
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			To understand how encryption works		
6	<p><u>Focus:</u> Game design in Scratch</p> <p><u>Structure:</u> Practical test of Scratch skills along with some short answer questions.</p> <p><u>Knowledge and skills assessed:</u> The use of block programming to create a simple game. The use of the three basic programming constructs used to control the flow of a program: Sequence, selection and iteration</p>	<p><u>Focus:</u> Python Programming</p> <p><u>Structure:</u> Practical test of Python programming skills.</p> <p><u>Knowledge and skills assessed:</u> The use of variables, constants, operators, inputs, outputs and assignments The use of 2 of the three basic programming constructs used to control the flow of a program: Sequence, selection.</p>	<p><u>Focus:</u> Ethical, legal, cultural and environmental concerns through the use of technology</p> <p><u>Structure:</u> Short and extended answer questions</p> <p><u>Knowledge and skills assessed:</u> Understand what is meant by a key stakeholder Identify stakeholders in a range of scenarios Recognise and discuss issues related to Environmental, legal Cultural, Morals & Ethics</p>	<p><u>Focus:</u> Robust Programming Translators</p> <p><u>Structure:</u> Short and extended answer questions</p> <p><u>Knowledge and skills assessed:</u> To understand the elements of defensive program design Know how comments and indentation can support maintainability Describe the role of testing, including how to identify errors and select appropriate test data.</p> <p>To be able to describe the different generations of programming language To be able to describe the differences between Low Level and High Level Languages To evaluate the benefits of programming in both Low and High Level languages</p>	

Curriculum on a page – IT

	Autumn Term	Spring term	Summer term	Assessment of learning	Enrichment opportunities / wider reading
Year 7	<i>N/A see Computer Science overview</i>			<i>Pupils will sit an external practical skills based exam.</i>	https://www.qualhub.co.uk/qualification-search/qualification-detail/ncfe-functional-skills-qualification-in-information-and-communication-technology-3973
Year 8	<i>N/A see Computer Science overview</i>				
Year 9	<i>N/A see Computer Science overview</i>				
Year 10	Email features and skills.	Spreadsheets skills (working with Data)	Presenting data skills		
Year 11	Preparation for final exam in November				https://www.qualhub.co.uk/qualification-search/qualification-detail/ncfe-functional-skills-qualification-in-information-and-communication-technology-3973